

Quarterly report from the Coastal Resilience Advisory Committee to the Select Board for January to March 2022.

Highlights from the quarter

- Chuck Larson gave a report on the potential for high tide flooding at the intersection of Easy Street and Oak Street based on NASA data and NOAA projections indicating that we may see nuisance flooding there as often as 100 times a year by 2040.
- With Vice Chair Peter Brace representing CRAC, 7 of 9 CRAC members attended the Design Thinking Workshop, with the others representing their own organizations. The Design Thinking Workshop on March 7th and 8th was wildly successful and a number of productive ideas were developed. The outputs of the Workshop are presented in this link. [Nantucket Design Thinking - March 2022 \(office.com\)](https://www.nantucketdesignthinking.com/march-2022)
- ReMain Nantucket released their follow-up Envision Resilience Nantucket Challenge Climate Survey II, which included three questions regarding the Coastal Resilience Plan (report download available at <https://www.envisionresilience.org/>)

COASTAL RESILIENCE PLAN ACTIVITIES:

The Committee decided on **CRP Recommendation 2-6: Downtown Neighborhood Flood Barrier** as the priority project to pursue for grant funding with Arcadis' assistance.

Recommendation 2-1 Steamboat Wharf Resilience: On [January 25th](#), Robert Davis, General Manager of the Steamship Authority spoke to CRAC, with Rob Ranney & Nat Lowell. He outlined the ways the SSA is incorporating flood protection in the design of the new Woods Hole terminal building. Mr. Davis spoke about replacing the deteriorating wharf bulkhead and 40 year old terminal building on Nantucket in the 2028-2032 timeframe, including plans for adapting to sea level rise and increasing severe weather, as well as coordinating with the Town on resilience projects along the Broad Street-Easy Street corridor.

Recommendation 1-8 Shoreline Change monitoring program.

Begun in December 2021 and developed throughout the first quarter of 2022, this program was expanded to new locations along the South Shore. Current locations include:

Tom Nevers – 5 monitoring points, Airport – 3 monitoring points, Nonantum Ave – 1 monitoring point
Sewerbeds – 3 monitoring points, Madaket Road – 2 monitoring points

Currently using stakes and measuring tape to measure change to the nearest foot. NRD is planning to purchase engineering level GPS unit that will be much more accurate and allow for many measurements and can also capture elevation change. Intend to develop a reporting plan for this information.

Recommendation 1-14 Update Locally-adopted Sea Level Rise Scenarios and Best Available Flood Hazard Data

- In February 2022, NOAA released an updated set of sea level rise projections. These are being reviewed by the committee and will be the subject of upcoming CRAC meetings
- The committee is also discussing the use of the Massachusetts Coastal Flood Risk Model as the most relevant sea level rise projects for Nantucket. In light of the recent update to the NOAA data, this is an ongoing conversation.

GRANT APPLICATIONS: The Coastal Resilience Coordinator is now actively pursuing a CZM grant for a feasibility study for the Downtown Neighborhood Flood Barrier.

- On February 22, committee spoke with Courtney Rocha, Southeast Regional Coordinator, Municipal Vulnerability Preparedness (MVP) about their grants program.
- On March 22, the committee spoke with Stephen McKenna, Cape Cod and Islands Regional Coordinator, from Coastal Zone Management (CZM) about the CZM grants program
- Two other grant programs were investigated:
 - A letter of interest was sent to the Direct Technical Assistance Program which is run through the FEMA program BRIC – Building Resilient Infrastructures and Communities.
 - National Fish and Wildlife Foundation (NFWF) Coastal Resilience Grants Program

Requests?

Is there anything that the committee wants to ask of or from the Select Board?

Downtown Neighborhood Flood Barrier Feasibility Study

RFR #: ENV 23 CZM 02

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Nantucket Town Hall
16 Broad Street
Nantucket, MA 02554

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Project Type: Redesigns and Retrofits
Total Project Cost: \$400,000
Match Amount: **TBD**
Grant Amount Requested: **TBD**

The proposed project is the next step toward implementing a priority recommendation of the Town's [Coastal Resilience Plan](#) (CRP), adopted by the Nantucket Select Board on 1/12/2022. The CRP was developed based on over a year of island-wide community engagement, detailed risk analysis, technical evaluation, conceptual design, and implementation planning. The activities for this CZM Coastal Resilience grant request will include:

- Inclusive island-wide and targeted community outreach to build support for adaptation in Downtown Nantucket
- Development of detailed project phasing to determine the location and implementation timing for the neighborhood-wide Downtown Neighborhood Flood Barrier recommended through the CRP, and;
- More detailed feasibility evaluation and design for a priority Phase 1 project determined through this scope of work. The Phase 1 project is a component of the neighborhood-wide project that can be implemented in the near-immediate term as a first step of the larger project.

The outcome is expected to be a refined and community-supported implementation phasing for Downtown flood barrier and feasibility assessment for a near-term priority project to advance to the next stage of design with a goal for implementation of a first phase project in the next five years. To do this, the project will produce information to help local leaders refine the project's conceptual design, build support, prioritize investment in near-term actions, and seek additional funding from local, state, and federal partners.

Coastal Hazards Management

The island of Nantucket is located east of Martha’s Vineyard and south of Cape Cod off the coast of mainland Massachusetts. With approximately 88 miles of shoreline Nantucket is, and always has been, highly exposed to a range of coastal hazards, most notably flooding and erosion. The features that make Nantucket an attractive place to live and visit – the ocean, the beaches and bluffs, tidal ponds, historic character, and the ways in which humans have altered and occupied the coastline over time – are also the features that create the need for coastal resilience planning to ensure that Nantucket can continue to adapt to changing conditions and evolving risks.

In recent years, the Nantucket community has coalesced around the need to proactively plan for coastal resilience. The Town has undertaken several coastal resilience planning projects, laying the groundwork for a comprehensive coastal resilience approach. These efforts have resulted in the [2019 MVP Community Resilience Building Summary of Findings](#), [2019 Natural Hazards Mitigation Plan](#), and the [2021 Coastal Resilience Plan](#) (relevant excerpts included in Appendix A).

Other related efforts include:

- [2009 - Nantucket and Madaket Harbors Action Plan](#)
- [2014 – Coastal Management Plan](#)
- [2015 - Center for Coastal Studies, Empowering Coastal Communities to Prepare for and Respond to Sea Level Rise and Storm-related Inundation: A Pilot Project for Nantucket Island](#)
- [2017 - Trustees of Reservations, Climate Vulnerability Assessment Coastal Properties](#)
- [2020 – Coastal Risk Assessment and Resiliency Strategies](#)
- [2021 – Resilient Nantucket Design Guidelines and Resilience Toolkit](#)

The Town has funded a fulltime Coastal Resilience Coordinator staff position and created the citizen-led [Coastal Resilience Advisory Committee](#) to lead these efforts. Additionally, local advocacy and land conservation organizations have been undertaking planning, community engagement, and capital projects to advance resilience. Together, these widespread efforts have generated significant momentum to advance the goals of coastal resilience within the community. To build on this momentum and take meaningful next steps towards resilience, the Town is now working with partners to seek funding.

In recent years, the Downtown neighborhood has been impacted by a number of flood events. These include wind driven flooding along Easy Street during a winter storm in January 2022, high tide flooding in November 2020, and flooding after heavy rainfall in April 2020. Appendices B and C include images and additional information about these and other recent flood events in the Downtown neighborhood.

The Town is working to reduce current flood and erosion risks and increase resilience through ongoing implementation projects which include:

- Dune planting and stabilization of area seaward of Millie’s Bridge in partnership with the Nantucket Conservation Foundation
- Upgrades to the Sea Street Wastewater Pumping Facility to improve sewage to the entire downtown area and improve harbor water quality
- Sconset Bluff protection and Baxter Road relocation

Through the funding requested in this grant application, Nantucket will build on this existing body of work to begin implementing one of the top priority recommendations of the CRP, the Downtown Neighborhood Flood Barrier and Resilience Project. This project is an essential next step to reduce current and future risk to essential infrastructure and service for the entire island and offers an opportunity to leverage recent momentum into a transformative project for the community, as described below.

Climate Adaptation

Overview of CRP Findings

By the end of this century, climate change will increase the frequency and severity of coastal hazards impacting Nantucket. As sea levels rise, high tide flooding will happen more often, coastal flooding will reach new areas of the island, and coastal erosion may progress more rapidly.

The Nantucket CRP included a comprehensive assessment of risks from flooding and erosion under present and future conditions. The results of this assessment showed cumulative risk from flooding and erosion totaling \$3.4 Billion dollars from 2020-2070, including 2,373 structures across the island.¹ The vast majority of at-risk structures are located in the Downtown neighborhood which is vulnerable to high tide flooding and coastal storm surge today and in the future. This includes risk to numerous structures designated historically significant within the Downtown Local Historic District as well as essential facilities and services, such as Steamboat Wharf (the primary supply chain and point of access to mainland Massachusetts), Hy-Line Cruises Terminal, the Downtown Stop & Shop (one of only two grocery stores on the island), and the primary electrical substation for National Grid, in addition to dozens of businesses and services that support the local economy, such as hotels, restaurants, car rental shops, and retail shops. The concentrated risk in Downtown has island-wide consequences, as people across the island depend on the Downtown for goods, services, and transportation.

The CRP found that the risk of flooding in the Downtown neighborhood is significant, totaling 300 buildings and \$940M dollars of damage through 2070, not including loss of services to roads and community services, or access to vital services like ferry terminals. The first priority for Downtown Nantucket is maintaining access to and from the island for people and supplies via Steamboat Wharf.

Steamboat Wharf is both the most essential and most at risk facility on Nantucket. Both it and the access roads leading to it, especially Broad Street and Easy Street, are vulnerable to frequent flooding and loss of service by 2050 and are impacted by more severe coastal storms already (Appendices B and C). These public assets provide essential transportation and emergency access with the Downtown and are integral to the entire island's long-term resilience. In addition to transportation assets, additional public facilities located Downtown include Town Hall and other administrative offices, public beaches and parks, and drainage and sewer infrastructure, including pump stations.

Downtown Neighborhood Flood Barrier

To mitigate this risk, the CRP recommended the Downtown Neighborhood Flood Barrier, with the goal of reducing impacts from coastal flooding and mean monthly high water through 2070, assuming 4.3

¹ This risk assessment was developed based on best-available coastal flood hazard data using the Massachusetts Coastal Flood Hazard Model (MC-FRM).

feet of sea level rise. The Design Flood Elevation for the project, to be further studied and confirmed through this study, is based on projections for frequent flooding from high tides and regular storms through 2070 based on the Commonwealth's sea level rise projections and the sea level rise scenario (High) recommended by the Coastal Resilience Advisory Committee. These projections are consistent with those used in the development of the Massachusetts Coastal Flood Risk Model, which was the basis of the CRP's coastal resilience planning.

Through the CRP's recommendations for the Downtown focus area (Appendix A), a conceptual plan for the Flood Barrier project and related projects was developed (CRP recommendations 2-1, 2-2, and 2-6). Based on this conceptual plan, the barrier has the potential to reduce risk Downtown by protecting 2.5 miles of public roads and 230 structures within the Nantucket Downtown Historic District from the 2070 high tide flooding level (mean monthly high water) and coastal storm surge events. Potentially protected structures include access roads to the ferries, eight municipal buildings and five critical facilities including an electricity substation, grocery store, telephone exchange station, and community center.

The CRP has preliminarily identified a first phase project focused on the lowest-lying section of the Downtown waterfront along Easy Street from Straight Wharf to Steamboat Wharf (Appendix D). The reach experiences tidal and coastal flooding today and will be vulnerable to monthly flooding by the 2050s due to sea level rise, threatening emergency access on Easy Street and nearby street, access to Steamboat Wharf, and damaging adjacent structures.

The scale of the project is significant and requires additional planning to determine specific locations for coastal resilience infrastructure, how the project might be implemented in phases over time, engage the community in key considerations and tradeoffs, further evaluate technical and regulatory feasibility, assess opportunities for nature-based approaches and transportation/recreational improvements, and determine phasing for long-term implementation.

Advancing the Downtown Neighborhood Flood Barrier Through Coastal Resilience Grant Funds

This grant request focuses, in part, on confirming the extent of the first phase project and further assessing the feasibility and preliminary design for the first phase of the Downtown Neighborhood Flood Barrier and Resilience Project. Based on the conceptual plans developed through the CRP, the first phase of the project was estimated to cost \$120M with at least \$320M in calculable benefits. Additional benefits from the project may also be quantified based on further analysis including reductions in loss of function for roadways, ferry service, and public parks due to flooding. There are also unquantifiable benefits that will accrue from the project including peace of mind for the community, protection of culturally significant historic structures, and preservation of the island's National Historic Landmark status.

The project is a significant and the community is eager to take meaningful action to adapt its Downtown center to increasing risks. Feedback received through community engagement conducted during the CRP indicated there was preliminary support for the project. Additionally, a [recent survey](#) conducted by ReMain Nantucket assessed community attitudes towards climate change and coastal resilience on Nantucket. The survey found the Downtown Neighborhood Flood Barrier the second most highly ranked recommendation from the Coastal Resilience Plan, after the elevation of Steamboat Wharf (Appendix E). However, the Nantucket community is committed to ongoing inclusive engagement through all

project phases. Therefore, in addition to a feasibility assessment, funding is needed for additional community engagement to advance the Downtown Neighborhood Flood Barrier and Resilience Project to the next step of implementation.

If awarded, this grant project (Downtown Flood Barrier Feasibility Study) would fund three primary deliverables, in addition to management of the project. More specifically, the proposed project will result in the following:

- **A community engagement plan** and process with the goals of engaging the community in the resilience planning process for Downtown and bringing property owners and other stakeholders (including the Steamship Authority, regulatory agencies, and funders) to the table to reach consensus on the project location, design, and implementation phasing.
- **A detailed risk-based implementation phasing plan** and refinement of the conceptual design for the Downtown Neighborhood Flood Barrier to confirm location and timing of near- and longer-term investments.
- **A feasibility assessment package** for the first phase project including technical feasibility assessment, permitting and regulatory requirements, assessments for opportunities to incorporate nature-based approaches and transportation enhancements, refined cost estimate and benefit cost analysis, operation and maintenance requirements, and design drawings suitable for federal funding applications.

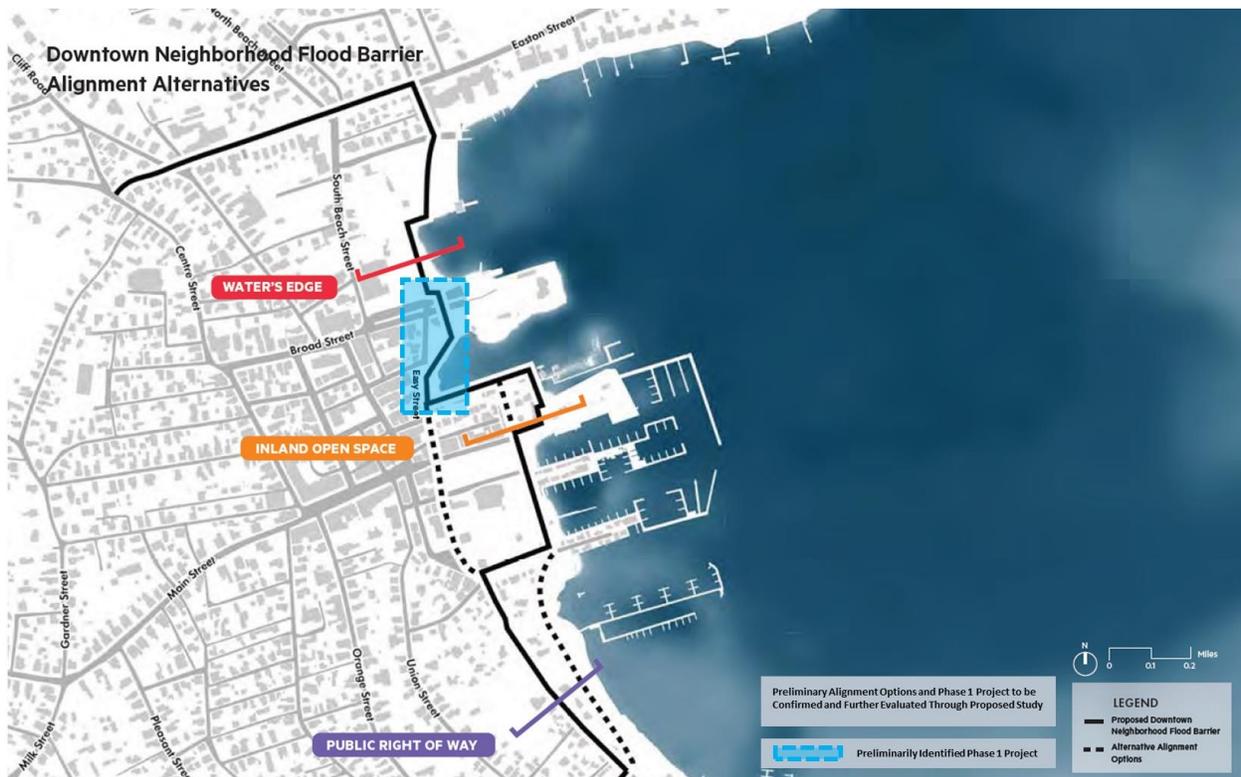


Figure 1 Map of Preliminary Alignment Options and Phase 1 Project to be Confirmed and Further Evaluated Through Proposed Study

Need for Assistance

The Downtown Neighborhood is the economic, cultural, and transportation center of Nantucket. As such, its protection benefits the entire population who live and work on Nantucket, most directly by serving as the hub for ferries transiting to and from the mainland. While Downtown Nantucket census blocks do not meet the criteria for Environmental Justice designation, Block Group 4, Census Tract 9502, located on the South Shore, is a designated Environmental Justice community. This project will directly benefit Census Tract 9502 by protecting Downtown community assets and access and operability of the ferry.

Further, it is important to note that Census data do not capture the diverse population of seasonal workers and residents who depend on Nantucket's tourism industry for employment. Each day, especially in the Summer and Fall, many workers travel from the mainland through Downtown to reach places of employ or to visit friends and family. This population is highly vulnerable to the effects of climate change and its potential to disrupt access to jobs. Stakeholder engagement through this effort will include outreach to this population through sharing of multi-lingual flyers and surveys on peak commute ferries during the summer and fall months.

Nantucket's Town government includes several departments currently working on coastal resilience and issues related to hazard mitigation, capital planning, and ecological restoration. These include the Department of Public Works, Sewer Department, Water Department, and Natural Resources Department. Within these departments, there are currently three specific positions responsible for advancing coastal resilience and related efforts. These are the Coastal Resilience Coordinator in Natural Resources Department, Special Project Manager in Town Administration, Preservation Planner in the Planning and Land User Services Department. The Town has sufficient resources to sustain the matching portion of this grant. In addition, inter-departmental Town staff are committed to managing the project in accordance with requirements of the CZM Coastal Resilience Grant Program.

The Town also has the ability to partner with local organizations such as Nantucket Land Bank and Nantucket Conservation Foundation to assist as needed with project delivery. The Coastal Resilience Advisory Committee, a citizen committee established by the Nantucket Select Board, will provide guidance and feedback throughout the project, as well as lead community outreach and support facilitation of public meetings.

The Town's budget is set each spring, and like every municipality, there are more needs than funds to meet those needs. Though Nantucket is seen as a wealthy community, our municipal budget is not sufficient to undertake large, vitally needed climate projects without additional assistance, including funding and outside expertise.

Project Description

The project for which this request is submitted includes three primary components including community engagement, project phasing analysis, and feasibility assessment and design. These components have been split across six tasks to be undertaken over a 16-month period of grant performance, as described below. An extended contract period is requested due to the complexity of the project and the need to meaningfully engage the summertime population of the island in the project development process.

The six tasks described below support *Public Outreach* and/or *Redesign and Retrofit* adaptation actions and will advance the long-term goal of constructing a community-supported flood protection barrier in Downtown Nantucket that protects critical facilities, supports community vitality and accessibility, has multiple public and ecological benefits, and that prolongs the life of Nantucket’s historic, cultural, and economic center.

To continue building community support for adaptation action in Downtown Nantucket and reach consensus on the barrier’s location, design, and implementation phasing, this project will incorporate a variety of community outreach and engagement activities throughout the period of performance. 35% of the project budget will be allotted to community engagement. All proposed tasks are geared toward positioning the project for the next stages of implementation, including detailed design, permitting, and construction. A primary near-term goal of all work funded by this grant will be to assemble a package of information suitable for federal funding applications through BRIC, HMGP, RAISE, or similar programs.

BUDGET BREAKDOWN BY TASK

Task	Budget	Percent of Total
Task 1: Long-term Community Engagement Plan (Completed in Year 1)	\$20,000	5%
Task 2: Community Engagement Activities (Year 1)	\$60,000	15%
Task 3: Project Phasing and Implementation Planning (Completed in Year 1)	\$60,000	15%
Task 4: Phase 1 Project Feasibility Assessment (Year 1)	\$60,000	15%
Task 5: Community Engagement Activities (Year 2)	\$60,000	15%
Task 6: Phase 1 Project Feasibility Assessment (Year 2)	\$140,000	35%
TOTAL	\$400,000	100%

YEAR 1 (September 2022 – June 2023)

Task 1: Long-term Community Engagement Plan (Completed in Year 1)

Through Task 1 the Town’s project manager, with support of community outreach consultants and the Coastal Resilience Advisory Committee, will develop a long-term community engagement plan to support the design and implementation of the Downtown Neighborhood Flood Barrier and Resilience Project. Intended as a living document, this plan will provide long-term continuity of engagement goals and activities across the limited periods of performance of various funding sources that will likely be necessary to implement this project. The project manager will work closely with the Coastal Resilience Advisory Committee to ensure that activities proposed through the long-term community engagement plan are sustainable and can be implemented primarily through leveraging existing or readily acquired Town resources.

Activities incorporated in the Long-term Community Engagement Plan may include:

- Development and maintenance of project website
- Periodic update of long-term community engagement plan
- Development of project-specific focus groups
- Recommendations for recurring surveys
- Standing, public project update meetings, and
- Flood risk awareness, education, and outreach campaigns
- Other elements as developed through the plan

Task 1 deliverables include:

- Project Website
- Draft Long-term Community Engagement Plan
- Final Long-term Community Engagement Plan

Through development of the Long-term Engagement Plan, Coastal Resilience Advisory Committee, town-staff, and others will be engaged to determine specific activities included in the plan and their scope. A draft version of the plan will be circulated for review by Town leadership, other key stakeholders, and CZM, and comments will be incorporated. It is assumed that the Long-term Community Engagement Plan will be a living document that will be tailored over the lifetime of the project to address stakeholder needs, incorporate innovative engagement approaches, and learn from engagement outcomes over time.

A project website hosted by the Town will be launched shortly after execution of a contract with EEA for this Coastal Resilience grant. This website will be updated periodically to support publicly facing resources that are generated throughout the lifetime of the Downtown Neighborhood Flood Barrier and Resilience Project, including those required or encouraged through the Coastal Resilience grant program.

Task 2: Community Engagement Activities (Year 1)

Active community engagement will be foundational in determining preferences, constraints, and opportunities for implementing the Downtown Neighborhood Flood Barrer. Though feedback received through community engagement during the CRP indicated preliminary support for the project, the Nantucket community is committed to ongoing engagement throughout all project phases. Through Task 2 (and Task 5 in year 2), there will be an opportunity to further engage the community in discussions around preferences, key considerations, and acceptable tradeoffs, ultimately resulting in a community-supported project.

In Year 1, engagement activities will include:

- Up to 4 small group workshops: an opportunity to assess preferences with a smaller group of stakeholders, including property owners who may be impacted by the project. Tabletop exercises and other interactive engagement techniques will be leveraged.
- Up to 8 project briefing meetings: an opportunity to for the project team to update regulators, town-staff, key stakeholders, and others on project progress and solicit feedback on targeted areas of interest or concern, such

Task 2 deliverables include:

- 4 small group workshops
- 8 project briefings
- 1 public open house
- 3 presentations to Coastal Resilience Advisory Committee
- 1 presentation to Nantucket’s Select Board
- Materials to promote all activities
- Presentation and facilitation materials
- Notes from all activities

as specific permitting requirements or design specifications.

- 1 public open house: an opportunity to inclusively engage the full Nantucket community in the project.
- 3 presentations by the project team to Coastal Resilience Advisory Committee: an opportunity to seek input and direction from the key citizen-led steering committee.
- 1 presentation to Nantucket’s Select Board: an opportunity to seek input and direction from the elected leadership of the Town.

Incorporating both small and large group engagement opportunities will allow the project team to facilitate multiple touchpoints to have intimate discussions about specific concerns and solicit feedback from a wide range of Nantucketers. All public engagement opportunities will be advertised across diverse channels in advance of meetings to encourage participation. This will include outreach to seasonal workers through sharing of flyers and potentially outreach on peak commute ferries during the summer and fall months. Flyers, surveys and other outreach materials will be translated into languages including Spanish and possibly Portuguese, Polish, and Bulgarian, as needed, to enable broad participation among those with limited English-speaking proficiency.

Logistics and facilitation for these engagements will be led by the project manager with the support of community engagement and risk communication consultants. With ongoing, public health concerns related to COVID-19, the engagement is expected to hybrid, combining in-person and virtual formats.

Task 3: Project Phasing and Implementation Planning (Completed in Year 1)

Leveraging the risk assessment conducted through the CRP and community input collected throughout the engagement process described in Task 2, Task 3 will center on the development of a project phasing and implementation plan. Task 3 will be led by the Town project manager and supported by technical planning, design, and engineering consultants.

Task 3 deliverables include:

- Draft Project Phasing and Implementation Planning Memo
- Final Project Phasing and Implementation Planning Memo

The CRP preliminarily identified a Phase 1 project focused on the lowest-lying section of the Downtown waterfront along Easy Street from Straight Wharf to Steamboat Wharf. The reach experiences tidal and coastal flooding today and will be vulnerable to frequent flooding in the future due to sea level rise, threatening emergency access on Easy Street and nearby street, access to Steamboat Wharf and damaging adjacent structures.

Task 3 will confirm and refine the extent of the Downtown Neighborhood Flood Barrier and Resilience Project’s location and phases of implementation through consideration of the following criteria:

- Community feedback
- Timing, urgency, and magnitude of risk
- Permitting and regulatory requirements
- Funding availability
- Long-term maintenance needs and responsibilities
- Design considerations related to community character and identity
- Opportunities for passive protection

- Opportunities for nature-based solutions
- Opportunities for transportation and public realm enhancement

A draft project phasing and implementation plan will first be developed and shared with Town leadership, the Coastal Resilience Advisory Committee, other key stakeholders, and CZM for review and comment. After incorporating comments and feedback, the final project phasing and implementation report will be released.

Task 4: Phase 1 Project Feasibility Assessment (Year 1)

Task 4, informed by Tasks 2 and 3, will begin to advance conceptual design for the Phase 1 project confirmed through Task 3. The task will advance the project to a level of design suitable for federal funding applications and the next stages of final design and permitting prior to construction. Given the scale and complexity of this project, a complete project feasibility assessment will require a second year of grant funding. In year 1, advancing the feasibility assessment will include refining concept designs, reviewing permitting and regulatory requirements, and refining costs for the Phase 1 project.

Task 4 deliverables include:

- Concept design visuals and description package
- Preliminary screening of required permit and permitting timelines
- Preliminary project cost estimates

YEAR 2 (July 2023 – December 2023)

Task 5: Community Engagement Activities (Year 2)

Task 5 will continue the engagement process begun under Task 2. The engagement process for Year 2 is expected to focus on informing and seeking community input regarding the design, tradeoffs, and benefits of the Phase 1 project being advanced to feasibility design.

In Year 2, engagement activities will include:

- Up to 2 small group workshops: an opportunity to assess preferences with a smaller group of stakeholders, including property owners who may be impacted by the project. Tabletop exercises and other interactive engagement techniques will be leveraged.
- Up to 4 project briefing meetings: an opportunity to for the project team to update regulators, town-staff, key stakeholders, and others on project progress and solicit feedback on targeted areas of interest or concern, such as specific permitting requirements or design specifications.
- 1 public open house: an opportunity to inclusively engage the full Nantucket community in the project. This open house is anticipated to occur in the Summer months to enable participation by summer residents and visitors.

Task 5 deliverables include:

- 2 small group workshops
- 4 project briefings
- 1 public open house
- 2 presentations to Coastal Resilience Advisory Committee
- 1 presentation to Nantucket's Select Board
- Materials to promote all activities
- Presentation and facilitation materials
- Notes from all activities

- 2 presentations by the project team to Coastal Resilience Advisory Committee: an opportunity to seek input and direction from the key citizen-led steering committee.
- 1 presentation to Nantucket’s Select Board: an opportunity to seek input and direction from the elected leadership of the Town.

As in Year 1, all public engagement opportunities will be advertised across diverse channels in advance of meetings to encourage participation. Logistics and facilitation for these engagements will be led by the project manager with the support of community engagement and risk communication consultants. With ongoing, public health concerns related to COVID-19, the engagement is expected to hybrid, coming in-person and virtual formats.

Task 6: Phase 1 Project Feasibility Assessment (Year 2)

Task 6 aims to deliver a technical feasibility memo for Phase 1 of the Downtown Neighborhood Flood Barrier and Resilience project. This task will be managed by the project manager and supported by consultants with experience preparing federal grant funding applications for similar project types and technical design and engineering. A FEMA-approved Benefit Cost Analysis suitable for federal funding applications and feasibility-level design drawings will be components of the feasibility memo. Additional components include documentation of community engagement process and results, summary of permitting requirements and timeframe, identification of nature-based approaches and transportation enhancements, and operation and maintenance requirements.

The final memo will become the basis of design report providing the necessary detail for the next stages of schematic design and permitting applications, as well as the basis for subsequent federal and state funding applications. All aspects of the project are geared toward positioning the project for the next stages of implementation, including detailed design, permitting, and construction. A primary near-term goal of all work funded by this grant will be to assemble a package of information suitable for federal funding applications through BRIC, HMGP, RAISE, or similar programs.

Task 6 deliverables include:

- FEMA-approved Benefit Cost Analysis suitable for federal funding applications
- 3 feasibility-level design drawing suitable for federal funding applications
- Draft technical feasibility memo
- Final technical feasibility memo

Public Benefits and Interests

The proposed project is a critical first step to increase the resilience of Nantucket as a whole by maintaining access to and from the island for people and supplies via Steamboat Wharf. Without a project like the one proposed here, access to Steamboat Wharf may be regularly blocked by flooding by 2050, preventing the ingress and egress of people, food, and other supplies critical to survival on the island. Maintaining access to and reducing flood risk to the wharf and surrounding roads will improve resilience for the entire island of Nantucket by enabling continued movement of people and supplies and a thriving Downtown neighborhood with vibrant history, natural environment, and community.

Through this project, a feasibility level design will be developed for Phase 1 of the Downtown Neighborhood Flood Barrier. Refinement of this design will allow more detailed assessment of the project’s costs, benefits, and overall improvement of coastal resilience in the Downtown Neighborhood.

Appendix F indicates ownership of properties in the Downtown neighborhood. The refined Phase 1 design will determine which properties benefit from or are otherwise impacted by the project.

Based on the initial conceptual plan developed for the CRP, the complete Downtown Neighborhood Flood Barrier has the potential to reduce risk Downtown by raising or otherwise protecting 2.5 miles of public roads from the 2070 high tide flooding level (mean monthly high water) and coastal storm surge events. Additionally, the complete barrier has the potential to reduce risk to 230 structures within the Nantucket Downtown Historic District. These structures are located landward of the barrier and potentially include eight municipal buildings and five critical facilities including an electricity substation, grocery store, telephone exchange station, and community center. A central goal of this project will be to engage with the Steamship Authority to coordinate on long-term risk reduction efforts. The design of the barrier will also need to be consistent with future plans for the adaptation of Steamboat Wharf and related ferry terminal facilities. It is crucial that the Town and Steamship Authority collaborate to prolong the life and access to this community lifeline.

Transferability

While Nantucket is unique in many ways, several aspects of the project offer transferable lessons to other coastal communities in Massachusetts and throughout New England. These opportunities are highlighted below. The Nantucket community is proud of its efforts to proactively advance resilience and is eager to share its work with CZM, partner organizations, and other communities.

Though undoubtedly unique, Downtown Nantucket is an economic, cultural, and historic center in an urban setting like many similar flood-prone places in Massachusetts and beyond. The Downtown Neighborhood Flood Barrier projects is an innovative project that offers opportunities to advance and share lessons related to:

- Adapting the built infrastructure of locally cherished historic downtown centers to the long-term risks posed by coastal flooding
- Inclusive community engagement for coastal resilience planning through the infrastructure design process
- Exploring opportunities for new resilience infrastructure with multiple community benefits (streetscape and transportation improvements, new or enhanced waterfront public access, green infrastructure, and nature-based solutions)
- Risk-based planning and decision-making to focus investment on highest priority areas
- The process of taking a project from planning to implementation through a multi-year, inclusive planning process

The Town is committed to sharing the results of the project and lessoned-learned with CZM and other municipal leaders throughout the Commonwealth and beyond. Nantucket is a leader in advancing climate resilience and is eager to work with CZM as a partner to expand the impact of the community's work.

Additionally, through *Task 1 – Long-term Community Engagement Plan* a project website will be developed to support the Downtown Neighborhood Flood Barrier and Resilience Project over its lifetime. The website will communicate project updates, share public meeting notices, and provide access to project deliverables. Additionally, this website will host a project case study developed at the

completion of the project using CZM’s template. The case study will share lessons-learned throughout the technical assessment and project process that may be relevant to other municipalities working to reduce their coastal flood and erosion risks.

Timeline

Task	Deliverable Due Date
YEAR 1	
Task 1: Long-term Community Engagement Plan	30-Nov-22
Sub-task 1.1 Launch of Project Website	30-Sep-22
Sub-task 1.2 Draft Long-term Community Engagement Plan	31-Oct-22
Sub-task 1.3 Final Long-term Community Engagement Plan	30-Nov-22
Task 2: Community Engagement Activities Year 1	30-Jun-23
Sub-task 2.1 Development and Delivery of Small Group Workshops (up to 4)	30-Jun-23
Sub-task 2.2 Development and Delivery of Project Briefing Meetings (up to 8)	30-Jun-23
Sub-task 2.3 Development and Delivery of Public Design Workshop / Open House (1)	30-Jun-23
Sub-task 2.4 Project Update Presentations to Coastal Resilience Advisory Committee (CRAC) and Select Board (4)	30-Jun-23
Task 3: Project Phasing and Implementation Planning	31-Mar-23
Sub-task 3.1 Draft Project Phasing and Implementation Plan	31-Jan-23
Sub-task 3.2 Final Project Phasing and Implementation Plan	31-Mar-23
Task 4: Phase 1 Project Feasibility Assessment Year 1	30-Jun-23
Sub-task 4.1 Refined Concept Design for Phase 1 Projects	30-Jun-23
Sub-task 4.2 Permitting and Regulatory Requirement Review for Phase 1 Projects	30-Jun-23
Sub-task 4.3 Cost Refinement for Phase 1 Projects	30-Jun-23
YEAR 2	
Task 5: Community Engagement Activities Year 2	31-Dec-23
Sub-task 5.1 Development and Delivery of Small Group Workshops (2)	31-Dec-23
Sub-task 5.2 Development and Delivery of Project Briefing Meetings (up to 4)	31-Dec-23
Sub-task 5.3 Development and Delivery of Public Design Workshop / Open House (1)	31-Dec-23
Sub-task 5.4 Project Update Presentations to CRAC and Select Board (3)	31-Dec-23
Sub-task 5.5 Community Engagement Summary	31-Dec-23
Task 6: Phase 1 Project Feasibility Assessment Year 2	31-Dec-23
Sub-task 6.1 Benefit Cost Analysis for Phase 1 Projects	30-Nov-23
Sub-task 6.2 Feasibility-level Design Drawings for Phase 1 Projects	30-Nov-23
Sub-task 6.3 Draft Technical Feasibility Assessment Memo for Phase 1 Projects	30-Nov-23
Sub-task 6.4 Final Technical Feasibility Assessment Memo for Phase 1 Projects	31-Dec-23

Budget

See Appendix G for the completed Scope and Budget Template, Appendix H for a Statement of Match, and Appendix I for Letters of Support from project partners.

Project Management

Vince Murphy will serve as the Town project manager and point of contact for this project. Vince is Nantucket’s Coastal Resilience Coordinator and has successfully served in such a capacity on related projects including the Coastal Resilience Plan, Baxter Road Feasibility and Engineering Study, and others.

Others on the Project Management team include Jeff Carlson, Natural Resources Director, Chuck Larson, Special Projects Manager, Gregg Tivnan, Assistant Town Manager and Holly Backus, Preservation Planner. Given that that the Downtown area has a large number of property owners, other stakeholders & advisors will include large conservation organizations such as Nantucket Island Land Bank, Nantucket Conservation Foundation, Nantucket Chamber of Commerce and the Nantucket Town Association, part of the Civic League.

See Appendix J for Vince's full resume in addition to resumes for proposed staff.

Appendices

Highlighted Attachments Under Development

Appendix A – Excerpts from Nantucket’s Coastal Resilience Plan

Appendix B – Recent Flooding in Downtown Nantucket

Appendix C – High Tides and Flooding on Easy Street Report and Update

Appendix D – Downtown Neighborhood Flood Barrier Phase 1 Project Extent

Appendix E – ReMain Nantucket Envision Resilience 2022 Survey

Appendix F – Map of Property Ownership Along Downtown Shoreline

Appendix G – Completed Scope and Budget Template

Appendix H – Statement of Match

Appendix I – Letters of Support

Appendix J – Resumes

PLANNING BOARD

According to the Town's website, "The Planning Board's mission is to review residential subdivisions; review secondary dwelling permits; and review special permits for major commercial development, moorlands management district developments, major residential developments, multi-family developments, and second curb cuts."

The Planning Board is also responsible for creating and updating the Town's Master Plan.

The Planning Board has 5 members who are elected to staggered five year terms. There are also 3 appointed Alternate members, however they are not eligible to sit on other Committees.

The Planning Board has representatives on the Community Preservation Committee and CRAC. The CRAC seat is currently vacant and will be filled after the vacant Planning Board seat is filled.

NP&EDC

(Adapted from the Town's website) The Nantucket Planning & Economic Development Commission is a Regional Planning Agency which was established by the Commonwealth of Massachusetts and Town of Nantucket "in order to plan for the orderly and coordinated development and protection of the physical, social and economic resources of the Island of Nantucket... Such plans shall include, but not be limited to, the preparation of studies, research reports and maps of natural resources, land utilization, economic development, recreation and conservation, transportation and population characteristics."

The NP&EDC is also responsible for creating and updating the Local Area Plans, which currently include Brant Point, Madaket, Mid-Island, Naushop Crossing, Sconset, Surfside, and Tom Nevers, with the Town area and Monomoy Area Plans in development.

By law, the NP&EDC is responsible for allocating Federal and State grant funding for transportation projects.

NP&EDC receives state funding for staff including the Town's Transportation Program Manager and portions of some positions in the Planning Department.

NP&EDC membership currently includes the 5 elected Planning Board members, and one representative each from the County Commissioners, Conservation Commission, and Housing Authority, as well as three At-Large positions (appointed to staggered three year terms) for a total of 11 members.

The NP&EDC appoints all members of the Bicycle & Pedestrian Advisory Committee.

The NP&EDC has representatives on the following other organizations and Town Committees:

Affordable Housing Trust

Capital Program Committee

Contract Review Committee of Human Services

Rural Policy Advisory Commission for the MA Executive Office of Housing & Economic Development

Massachusetts Association of Regional Planning Agencies